AMENDMENTS TO IN THE CLAIMS

1.   (Currently Amended) A PN sequence phase searching apparatus in a multi-carrier CDMA mobile communication system using the same PN code phase values, comprising:

at least two PN sequence phase searchers for searching for the PN sequence phase of one of at least two different band input signals using different assigned search conditions and for outputting PN phase and energy information; and

a controller for assigning said different search conditions to said at least two PN sequence phase searchers and for determining a minimum phase variation period based on the PN phase and energy information received from said at least two PN sequence phase searchers,

wherein said different search conditions include phases and search periods corresponding to a plurality of PN sequence phase search starting points determined by dividing the entire phase area into a number of sections.

2.   (Cancelled)

3.   (Currently Amended) The PN sequence phase searching apparatus of claim 2 1, wherein said plurality of PN sequence phase search starting points in said different search conditions are assigned to said at least two PN sequence phase searchers by dividing a PN sequence by the number of the PN sequence phase searchers.

4.   (Currently Amended) The PN sequence phase searching apparatus of claim 2 1, wherein said different search conditions are set by dividing a PN sequence into predetermined periods and the divided search periods are sequentially assigned to said at least two PN sequence phase searchers.

5.   (Original) The PN sequence phase searching apparatus of claim 1, wherein said at least two PN sequence phase searchers perform a PN sequence phase search within a minimum phase variation period determined by said controller.

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6.   (Original) The PN sequence phase searching apparatus of claim 5, wherein one of said at least two different band input signals is switched to said at least two PN sequence phase searchers at the time point when said different search conditions are assigned and the band input signals are switched to the corresponding PN sequence phase searchers at the time point when the minimum phase variation range is determined, under the control of the controller.

7.   (Amended) A PN sequence phase searching method in a multi-carrier CDMA mobile communication system using the same PN code phase values, comprising the steps of:

searching for the PN sequence phase of one of at least two different band input signals in parallel using different assigned search conditions;

outputting PN phase and energy information; and

determining a minimum phase variation period based on the PN phase and energy information,

wherein the different assigned search conditions include phases and search periods corresponding to a plurality of PN sequence phase search starting points determined by dividing the entire phase area into a number of sections.

8.   (Cancelled)

9.   (Previously Presented) The PN sequence phase searching method of claim 7, wherein the different search conditions are set by dividing a PN sequence by the number of the parallel PN sequence phase searches and assigning corresponding phases produced by the division as the PN sequence phase search starting points.

10.   (Previously Presented) The PN sequence phase searching method of claim 7, wherein the different search conditions are set by dividing a PN sequence into predetermined periods and the divided search periods are sequentially assigned for the parallel PN sequence phase searches.

11.   (Previously Presented) The PN sequence phase searching method of claim 7, wherein said minimum phase variation period is determined by phase information corresponding to the highest energy among the energy information.

12.   (Original) The PN sequence phase searching method of claim 7, further comprising the steps of:

searching for the PN sequence phase of each input signal within the determined minimum phase variation period; and

transmitting PN sequence phases acquired in the search to an upper processor, after the minimum phase variation period determining step.

13.   (Original) The PN sequence phase searching method of claim 11, further comprising the steps of:

searching for the PN sequence phase of each input signal within the determined minimum phase variation period; and

transmitting PN sequence phases acquired in the search to an upper processor, after the minimum phase variation period determining step.

14.   (Original) A PN sequence phase searching method in a multi-carrier CDMA mobile communication system, comprising the steps of:

searching for the PN sequence phase of one of at least two different band input signals in parallel on assigned different search conditions and outputting information about PN phases and energies;

sorting the energies of each searcher and comparing each max energy with a threshold varied with the number of PN sequence phase searches;

assigning new corresponding search conditions to PN sequence phase searchers satisfying the threshold, and perform the PN sequence phase search with the new search condition if max energy satisfy the threshold;

repeat the same process as upper case the predetermined number of times if max energy and frequency error satisfy the corresponding thresholds;

determining a minimum phase variation period based on the PN phase information, if there's a PN phase which satisfy all of the conditions;

assigning another search condition which include another search window size and starting point to the PN sequence phase searchers which does not satisfy a threshold and resume PN phase search if max energy or frequency error does not satisfy the thresholds at any stage

15. (Original) The PN sequence phase searching method of claim 14, wherein the threshold is incremented stage by stage according to the number of the PN sequence phase searches.

16. (Original) The PN sequence phase searching method of claim 14, wherein only when an energy higher than the threshold is output, the PN sequence phase search is resumed.

17. (Original) The PN sequence phase searching method of claim 14, wherein the different search conditions include phases and search periods corresponding to a plurality of PN sequence phase search starting points.

18. (Original) The PN sequence phase searching method of claim 17, wherein the different search conditions are set by dividing a PN sequence by the number of the parallel PN sequence phase searches and assigning corresponding phases produced by the division as the PN sequence phase search starting points.

19. (Original) The PN sequence phase searching method of claim 17, wherein the different search conditions are set by dividing a PN sequence into predetermined periods and the divided search periods are sequentially assigned for the parallel PN sequence phase searches.

20. (Original) The PN sequence phase searching method of claim 14, further comprising the steps of:

searching for the PN sequence phase of each input signal within the determined minimum phase variation period; and

transmitting PN sequence phases acquired in the search to an upper processor, after the minimum phase variation period determining step.